

**WEST MICHIGAN
TRANSPORTATION
OPERATIONS CENTER**

www.Michigan.gov/WMTOC

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Monthly Performance Measures

April 2019

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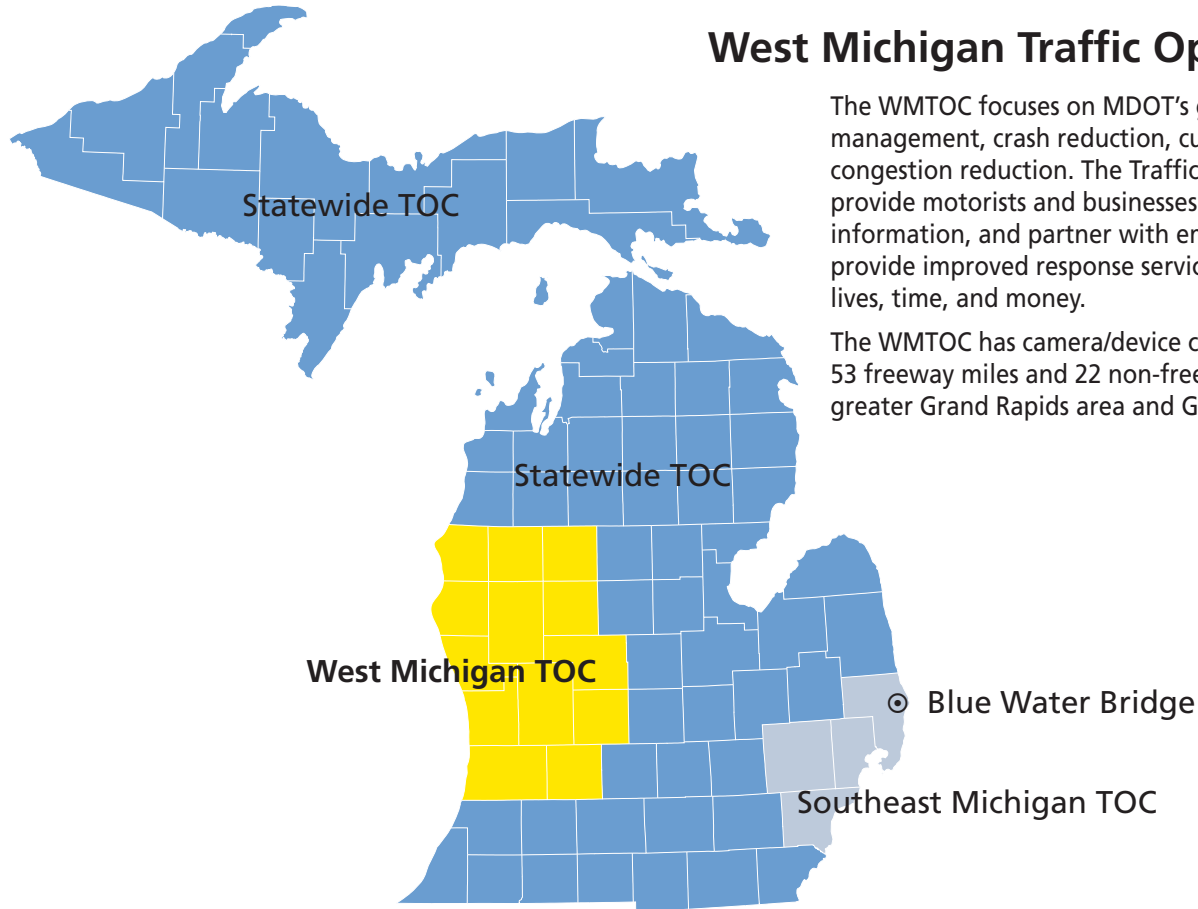
MDOT'S MISSION

Providing the highest quality integrated transportation services for economic benefit and improved quality of life.

West Michigan Traffic Operations Center

The WMTOC focuses on MDOT's goals of incident management, crash reduction, customer information, and congestion reduction. The Traffic Operations Centers (TOC) provide motorists and businesses with real-time traffic information, and partner with emergency response agencies to provide improved response services to traffic crashes – saving lives, time, and money.

The WMTOC has camera/device coverage on approximately 53 freeway miles and 22 non-freeway trunkline miles in the greater Grand Rapids area and Grand Haven.



April 2019 Spotlight

Construction Season is Here

On April 1, the Michigan Department of Transportation (MDOT) closed westbound I-196 over the Grand River in downtown Grand Rapids for a construction project. As a result of this closure, several ramps around this interchange will also be closed. This project includes rebuilding the bridge structure over the river and adding a travel lane. The project is scheduled for completion at the end of August. Traffic is being detoured on westbound I-96 to southbound US-131, where it returns to westbound I-196. Local traffic will have access to westbound I-196 ramps at Fuller Avenue, College Avenue, and Ottawa Avenue.

Another significant project began on April 1 and will realign the eastbound I-96 and I-196 interchange as well as ramps to East Beltline Avenue. This project involves single-lane closures on I-96. The single-lane closures will affect traffic on eastbound I-96 between Leonard Street and East Beltline Avenue. Beginning in mid-June, eastbound I-96 will be closed after the Leonard Street exit for approximately four and a half months. Eastbound I-96 will remain open to the Plainfield Avenue and Leonard Street exits; however, through-traffic will be detoured to eastbound I-196 via southbound US-131.

With the multiple projects in the Grand Region, the WMTOC is supporting all of the activities in a variety of ways. The staff at the WMTOC are providing traffic flow restrictions entry for the transportation service centers as requested to ensure information is posted on the Mi Drive traffic information website for motorists. The WMTOC is providing a weekly updated report to assist engineers in finding conflicts with projects and detour routes to minimize the impact on traffic. The WMTOC has enabled automatic slowed/stopped traffic messages for projects on I-96 and I-196 to alert motorists as they approach a congested area.

Events by Type

Figure 1 shows events by type.

Event: An occurrence within the transportation operations center (TOC) coverage area that requires action or tracking.

Unplanned Events: An incident or other uncontrollable event that directly affects a Michigan Department of Transportation (MDOT) roadway. Unplanned events include Incidents (crashes, disabled vehicles and debris in the roadway) and other events (weather, congestion, and unclassified).

Planned Events: Events that are scheduled. These include construction, maintenance, and special events.

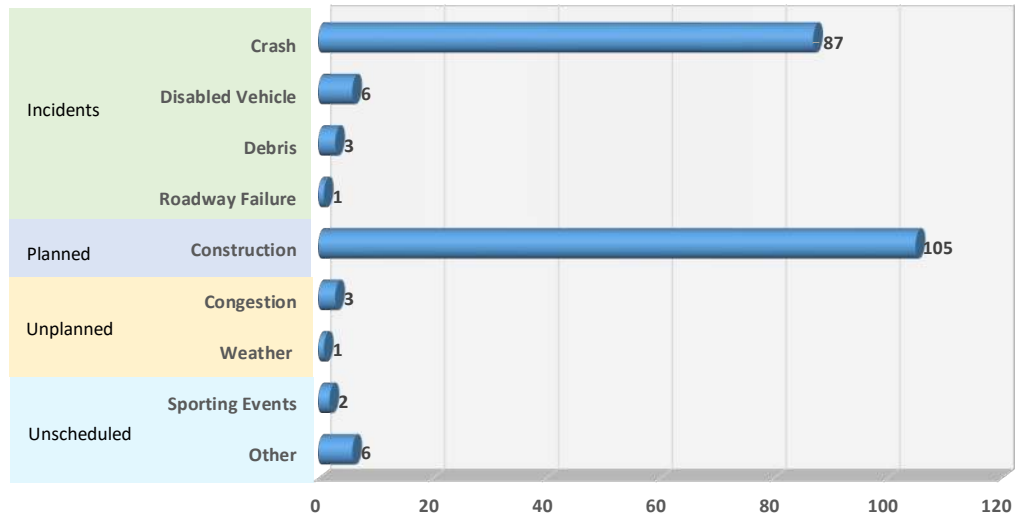


Figure 1

Of the **214** total events this month, **97 (45 percent)** were classified as **Incidents**.

Construction season in Michigan began in April. With the beginning of this season, MDOT deployed several temporary portable changeable message signs (PCMS). This month there were **2,267** auto responses. Auto response events are created automatically based on slower than normal speeds for a period of time. Speeds are detected by several sources and the traffic management software sends pre-determined messages to dynamic message signs (DMS) and PCMS to alert motorists about traffic conditions ahead.



Figure 2

Incidents by Detection Source

Figure 2 provides information on detection sources.

Control room operators (CRO) rely on various sources to detect incidents that occur along the freeways. Noting the source ensures that the incident was detected by a reliable source and provides insight on which sources provide the most information.

Communication

Figure 3 shows communications displayed by type that are managed by CROs.

WMTOC tracks all incoming and outgoing communications to the control room. This includes phone calls, e-mails sent and received, and notifications sent to stakeholders.

CROs managed **1,392** communications this month. Of those communications, **895 (64 percent)** were e-mails, including notifications, and **497 (36 percent)** were phone calls.

The largest number of communications is with MDOT staff, which includes traffic operations, construction, maintenance, county road commission personnel, and other MDOT personnel.

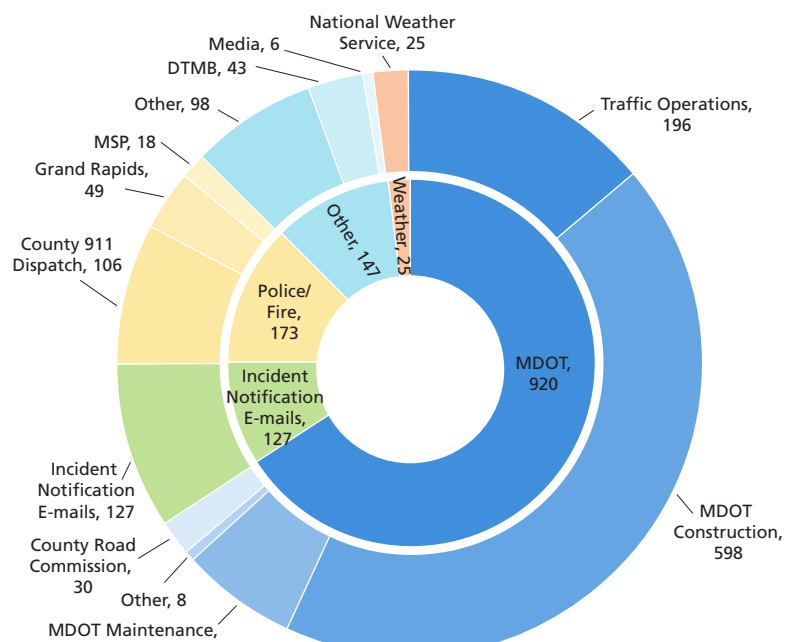
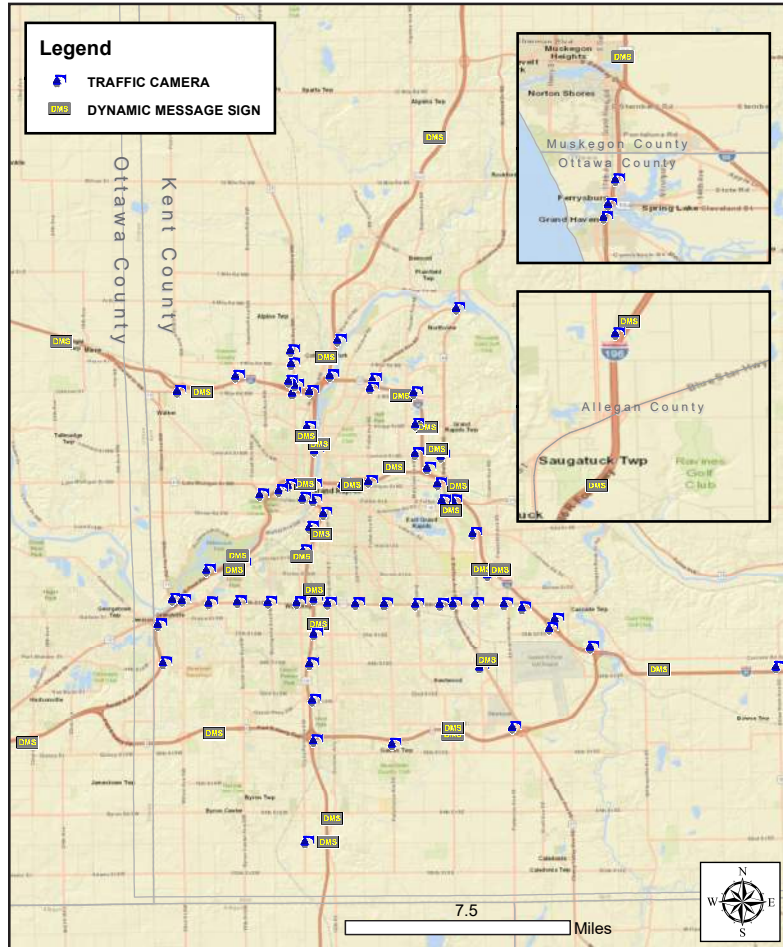


Figure 3

Device Locations



DMS Messages by Type

There were **202** "unique messages" displayed throughout the intelligent transportation systems network this month, as shown in **Figure 4**.

"Unique messages" include incidents, special events, congestion, weather, construction, or AMBER alerts.

Travel time messages are routinely displayed when unique messages are not active. Travel times are updated every three minutes.

Unique Messages

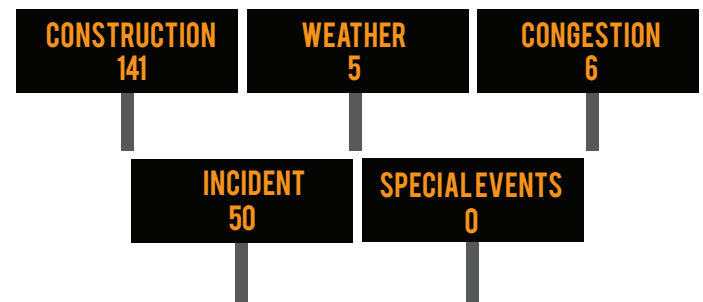


Figure 4

Field Device Availability

The WMTOC tracks the availability of all system devices so that timely maintenance can occur. Reliability of the devices ensures that the operators have tools available to accurately provide traffic conditions to the motoring public. **Table 1** shows field device availability for this month.

Device Type	Number of Devices	Percent Available
Cameras	71	95%
DMS	33	96%
Microwave vehicle detection system	132	46%

Table 1

Work Zone Activities

The WMTOC provides support for the transportation service centers (TSC) in the Grand Region during the construction season. Staff review entries for the region to ensure the information posted on Mi Drive is accurate and concise, and continually monitor work zone activities when possible with the ITS devices available. Operators also provide reports for MDOT projects to assist with coordination efforts throughout the region. **Figure 5** shows the total number of events entered for each TSC and the number of events for which the WMTOC provided direct support.

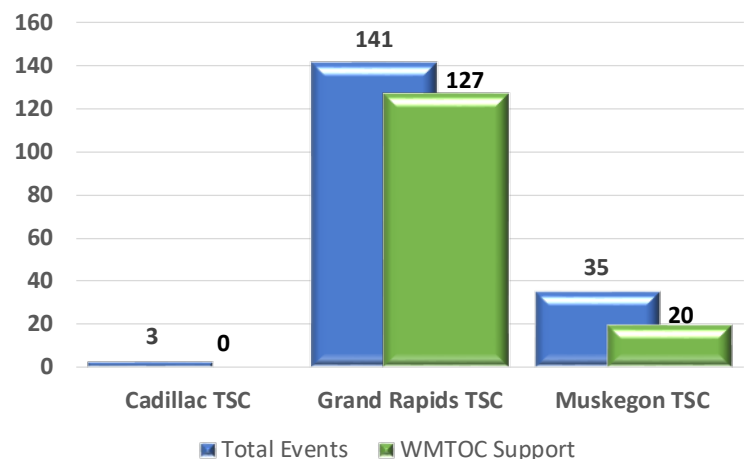


Figure 5

Incidents on Key Routes

Table 2 indicates that **US-131** had the highest total number of incidents and the highest per mile rate in April. **US-31** had the longest incident duration for the month. The table shows incidents for high-volume roadways in the Grand Region.

Route	Miles	April 2019			April 2018			Previous 12-month Avg.		
		Total Incidents	Incidents Per Mile	Average Duration	Total Incidents	Incidents Per Mile	Average Duration	Total Incidents	Incidents Per Mile	Average Duration
I-96, US-31 to M-50	52	12	0.2	1:54	12	0.2	1:07	19.3	0.4	1:05
I-196, Blue Star Hwy to I-96	40	12	0.3	0:56	26	0.7	0:44	28.8	0.7	0:52
US-131, 84th St to Rockford Rest Area	24.5	50	2.0	1:45	41	1.7	0:40	56.9	2.3	0:56
US-31, I-96 to M-120	8	5	0.6	2:49	5	0.6	0:50	5.8	0.7	1:55
M-6, I-196 to I-96	19	3	0.2	1:10	3	0.2	0:40	3.0	0.2	0:53
M-11, I-196 to I-96	11.5	2	0.2	0:14	3	0.3	0:17	1.2	0.1	0:43
M-37/M-44, M-6 to West River Dr	15.5	5	0.3	0:33	3	0.2	0:32	3.1	0.2	0:49

Table 2

Table Key Increase No Change Decrease

Data is compared to the same month of the previous year.

Total Unplanned Incidents

There were **97** total unplanned incidents this month; **79 percent** of these were high-impact incidents. A high-impact incident is one that results in a total freeway closure, a ramp closure, or a lane closure.

Incident information is shown in **Figure 6**.

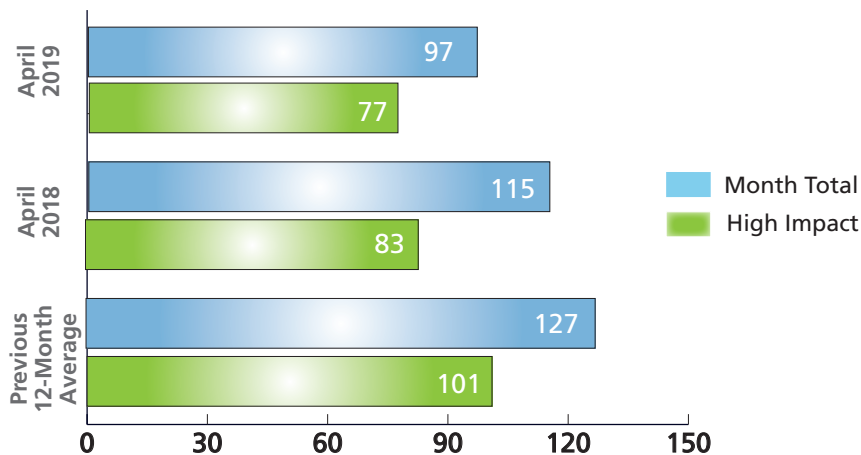


Figure 6

High-Impact Incidents

Sixty-five percent of high-impact incidents this month occurred along **US-131**. For most high-impact incidents, CROs provide e-mail notifications to stakeholders in the affected area. The notification includes the location of the incident, the degree of closure, the reason for the closure, and any other pertinent information related to traffic operations. See **Table 3**.

Closure Type	April 2019	April 2018	Previous 12 - Month Avg
Freeway Closure	16	8	16.5
Lane Closure	61	75	84.7
Ramp Closure	0	0	0.0
Total	77	83	101.2

Table 3

Work Zone-Related Events

There were **0 incidents** identified by operators as being related to work zones during this month.

Top Duration Incidents

The longest-duration incident this month occurred on **US-31 at Hoague Road**, which lasted **6 hours, 7 minutes**. The average incident duration for April was **52 minutes**. See **Table 4**.

Location	Date	Duration	Details
US-31 at Hoague Road	April 16	6:07	Crash
US-131 after 84th Street	April 2	2:57	Crash
US-131 before 84th Street	April 2	2:52	Crash
US-31 after 118th Avenue	April 9	2:40	Crash
US-31 at US-10 E/Scottville	April 23	2:20	Crash

Table 4

Total Incidents per Weekday Hour

The WMTOC operates 24 hours per day, 7 days per week. The WMTOC is staffed locally during peak traffic hours, typically 6 a.m. to 8 p.m. Operations are transferred to the Statewide Transportation Operations Center during off-peak hours.

During the month of April, **3 p.m.** had the largest hourly number of incidents. Historically, **8 a.m.** has the greatest number of incidents in the Grand Region. **Figure 7** shows **incidents** for weekdays for this month.

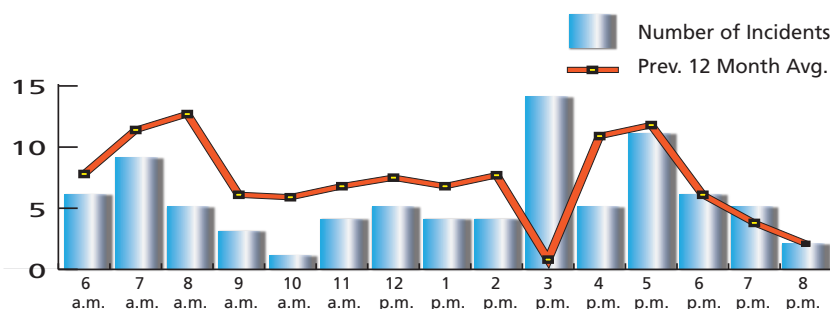


Figure 7

Incident and Roadway Clearance Times

MDOT shares a goal with local first responders to clear incidents from the roadway as quickly as possible. Reducing overall incident clearance times limits the risk to travelers and responders on scene. Effective response and clearance improves safety for motorists as well as first responders. MDOT's goal is to minimize delays caused by incidents as well as the occurrences of secondary incidents.

Roadway clearance time: The time between the awareness of an incident and confirmation that all lanes are open to traffic.

Incident clearance time: The time between the awareness of an incident and when all involved vehicles are removed from the scene.

Figure 8 shows a breakdown of the number of incidents in each time to clear bracket. **Figure 9** illustrates the average roadway and incident clearance times for the month.

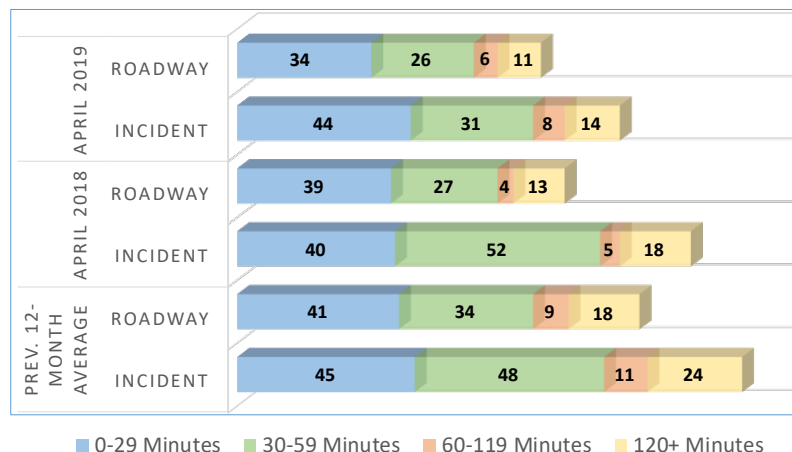


Figure 8

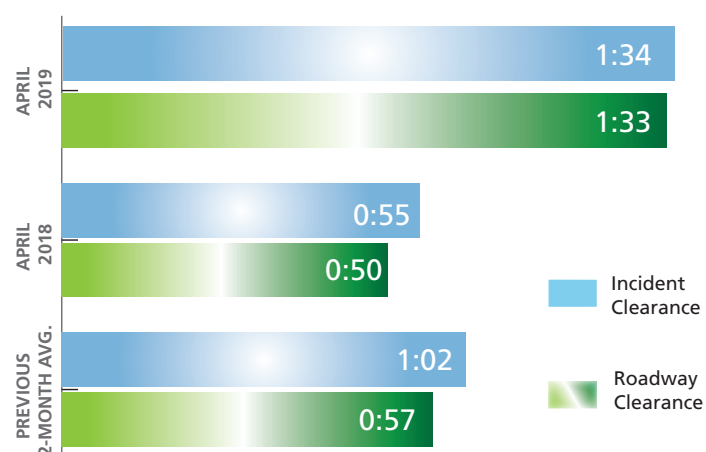


Figure 9

Secondary Crashes

Out of the **87** total crashes this month, **2 percent** were **Secondary Crashes** as observed by WMTOC CROs.

Crash Hot Spot and Most Used DMS Activity

Figure 10 shows areas where the greatest number of crashes occurred in the reported month. The shading starts with green for fewer crashes, then transitions to yellow for a moderate number of crashes, and finally to red for the highest number of crashes based on the total crashes that occurred. The top five most used DMS are also depicted on the map. The direct correlation can be seen between the areas of most crashes to DMS utilization.

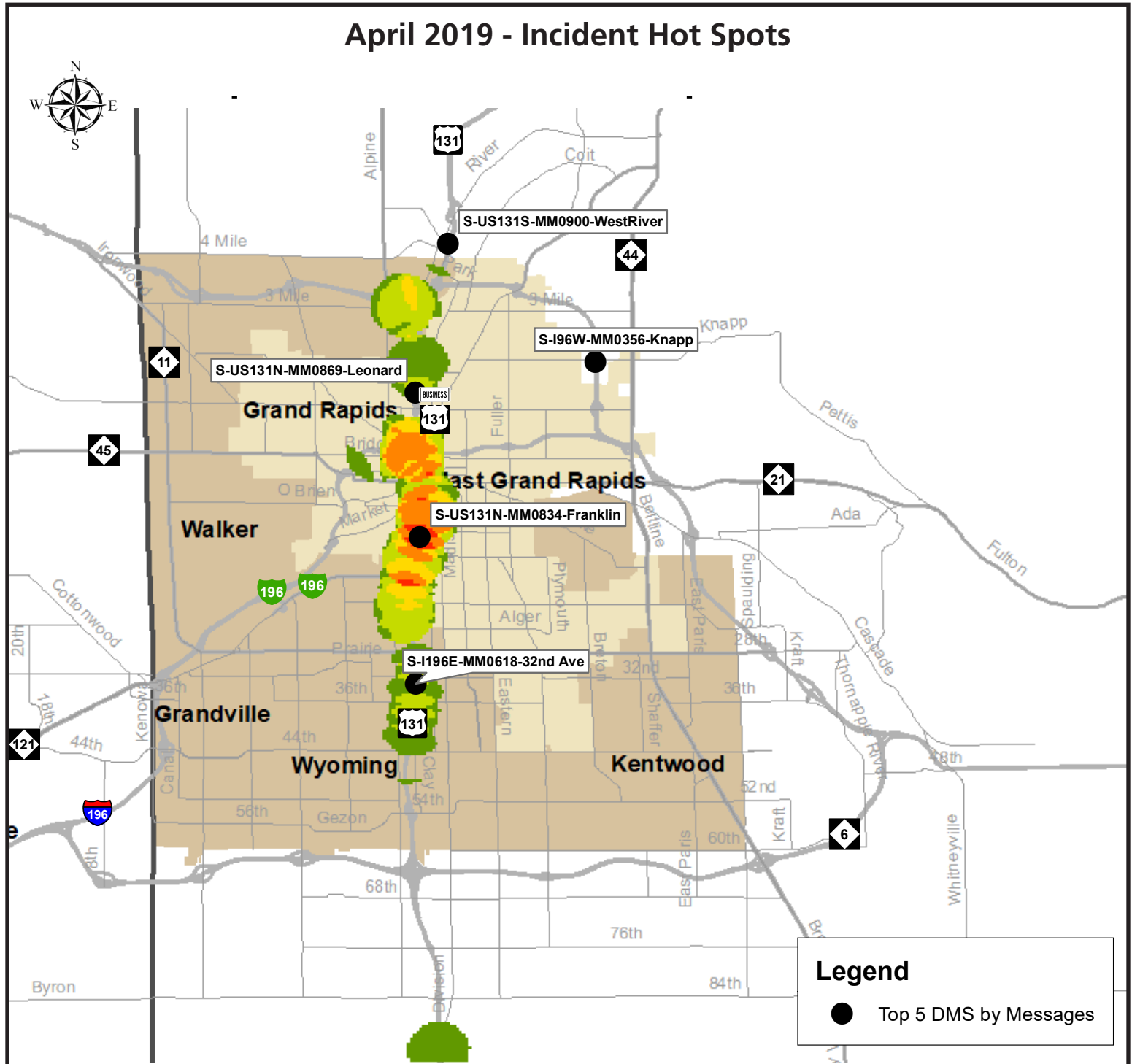


Figure 10